

By Peter Holte, Natural Resources

HIDDEN TREASURES

Freshwater Mussels

About a quarter of Redmond is located in the Bear Creek Watershed—a watershed that starts near SR520 where Bear Creek enters the Sammamish River and runs north to the creek's headwaters in Snohomish County. In this watershed lives an often overlooked creature that is becoming increasingly rare in the Puget Sound area: the freshwater mussel.

Now admittedly, at first glance, freshwater mussels might not seem the most charismatic of all creatures. They are not warm and

fuzzy. The adults basically just sit on the bottom of streams, waiting for bits of food to float their way. But, by taking a second to look at how they help keep our waterways clean, how long they live, and how they reproduce, you find they are every bit as wonderful as the other creatures in and near Redmond. They just need better public relations.

Any such public relations campaign would have to begin by explaining the important service that freshwater mussels provide to our aquatic eco-systems. Adult mussels bury themselves into soft riverbeds and

use two siphons to continuously suck water through their gills. This provides them with oxygen and food in the form of microscopic plants and animals (a.k.a. plankton). As they eat, they provide us and other critters that use the creek with a huge favor—they clean the creek's water. In fact, one estimate predicts that a single mussel can filter a liter of water per hour. Multiple that times thousands of mussels spread throughout a watershed and impact becomes pretty significant.



The public relations campaign would also have to mention that mussels can live up to 100 years. Further, it would have to mention that mussels were at one time an important food source for Native Americans, and that young mussels have an interesting method of moving around the watershed. In late spring, adult mussels go fishing—they secrete a fishing line in the form of attached membrane that acts something like a fishing lure. When the unsuspecting fish come close to or strikes at this lure, the membrane bursts, casting out thousands of young, larval mussels called glochidia. The glochidia attach themselves to the gills of the fish. The fish will transport the hitchhiking young mussels to a new location in the watershed. The mussels release themselves from their host's gills, and if successful, they will mature and create a new colony of mussels.

Unfortunately the public relations campaign would also have to mention that freshwater mussel populations are in peril. Once abundant throughout Puget Sound area creeks and throughout much of the United States, freshwater mussels are thought by some to be the nation's most endangered animals. Of the 300 different species native to this country, some 70% to 75% are extinct or in danger of extinction. Though Bear Creek watershed has a large number of mussels, the numbers here, like elsewhere, are in decline.

In 2002, a local volunteer non-profit group, Watertenders, began studying mussels in Bear Creek Watershed; first to learn where the mussel could be found, and more recently, to try to learn why the mussels' numbers are in decline. The group's concern with the mussel is well placed. The presence of freshwater mussels is an excellent indicator that a stream is healthy, but a decline in their numbers indicates that the stream's

ecological system is in some way stressed.

At this point, there is no indication as to why the numbers in our area are declining. But Watertenders' work has attracted the attention of King county and the University of Washington, who are working to study mussel populations in our area. As these studies progress, we hopefully will learn more about these often overlooked but important creatures.

Intrigued? For more information visit www.watertenders.org or <http://dnr.metrokc.gov/wlr/waterres/mussels/mussel12.htm>.

SAVING WATER

Fall is a great time to look for ways to save water.

In the Garden

Before turning off the irrigation system, make sure it is drained, and take the time to check for leaks or poorly aimed or misfit irrigation sprayheads and replace or repair them. Opportunities for irrigation rebates for rain sensors and controller upgrades are available through the Cascade Water Alliance, www.cascadewater.org or 425-453-1810

Fall is also a great time for planting. Nurseries often have special fall sales for plants that can go in now and be

enjoyed next spring. You'll also be able to take advantage of fall rains to help water in your new plants or turf.

In the Home

The biggest water savings in the house is achieved by installing efficient fixtures and fixing leaks. Research has shown that about 8% of all residential water use is wasted through leaks, usually in toilets. Checking a toilet for leaks is easy. Find great information on finding and fixing leaks at www.savingwater.org/docs/leaks.pdf

Wash only full loads in the dishwasher and clothes washer, and save energy and water. For qualifying washers, please check the latest listing at www.cascadewater.org and www.pse.com for rebates up to \$100 and water savings up to 14.5 gallons per wash.

For dishwashers, look for Energy Star models. They save both water and energy. New models also don't require pre-rinsing the dishes. Unless you are frugal with water use, dishwashers will usually use less water than hand washing dishes.

Don't let the water faucet just run while brushing your teeth, shaving or washing dishes. Catch and save lukewarm water for watering plants and other use while you wait for hot water in kitchens and showers.

Shorten your shower by just one or two minutes and save up to 150 gallons a month. Take a shower instead of a bath and save up to 40 gallons each time.



Take shorter showers and save big.

(1 minute saves over 1000 gallons a year.)

Be water smart.



cascadewater.org



SALMON WATCHING

Search for Salmon

The City of Redmond seeks volunteers to help us track salmon populations. Volunteers will observe local streams and search for salmon for 15 minutes twice a week while salmon are running, usually October to January. Volunteers count the number and type of salmon spotted at a specific location. This information is pooled with data gathered from other volunteers throughout the county. Training is provided. To learn more about the program, visit the Salmon Watchers website: <http://dnr.metokc.gov/wlr/waterres/salmon> or contact Peter

Holte at pholte@redmond.gov or 425-556-2822.

Training dates:
Woodinville City Hall
 September 12th, 7 – 9pm
Bellevue City Hall
 September 14th, 7 – 9pm

Nature Vision

The City is sponsoring naturalists from the non-profit Nature Vision to guide visitors at a Salmon Watching Station on the 90th Street Bridge. The station offers short, fun, hands-on activities and displays, and provides you with a chance to see wild salmon migrating back to the native spawning grounds.

Nature Vision will be at the 90th Street Bridge and the Sammamish River the following Saturdays
October 7, 1 – 3pm
October 28, 1 – 3pm

More Salmon Watching

Redmond Organization for a Shared Environment offers guided nature hikes along Bear Creek. Contact R.O.S.E. at 425-882-1846 or email redmond.ROSE@verizon.net for more information.

The local non-profit Water Tenders offers “Meet the Salmon” programs along Bear Creek. Learn more at www.watertenders.org.

AIR QUALITY

When you see brown haze instead of the mountains on a warm summer day, remember that you are breathing what you see – bad air. Specifically, you are breathing fine particles that cause lung and heart diseases, asthma and other ailments.

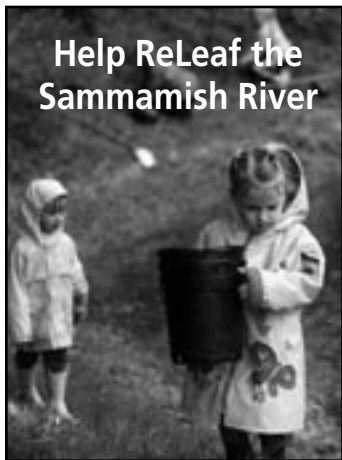
In the Puget Sound region, driving is the single biggest activity affecting air quality. Cars and trucks produce more than 700,000 pounds of smog-forming pollutants on a summer day in this region. More than half of our average annual air pollution comes from tailpipes putting fine particles and toxic compounds into the air we breathe and contributing to greenhouse gases.

Consider these alarming statistics

- It has been discovered that, older Americans in the most polluted parts of the country are significantly more likely to need medical treatment, particularly for lung ailments. The study suggests reducing air pollution could cut medical spending.
- A U.S. Environmental Protection Agency study published in September says that diesel exhaust is likely to damage lungs and pose a lung cancer risk to humans. The study also says evidence is emerging that diesel exhaust makes existing allergies and asthma symptoms worse. According to the Puget Sound Clean Air Agency, in our region, 77 percent of the cancer risk from toxic air pollutants comes from diesel exhaust.
- Air pollution worsens heart disease by cutting off

circulation to the heart, Finnish researchers reported. Their study helps explain why polluted environments aggravate not only asthma but also heart conditions. The researchers looked specifically at fine-particle pollution coming from factory smokestacks and the tailpipes of some diesel-powered

Help ReLeaf the Sammamish River



Help plant trees and shrubs along the Sammamish River in Woodinville and Redmond. Join community groups, families and volunteers of all ages in making the Sammamish River a better place for people, fish and wildlife.

Wear old clothes and work shoes. Dress for the weather, we work rain or shine! Tools, snacks, water, instruction, portable toilets and our unlimited gratitude is provided.

An adult must accompany those under age 16. Those under 18 must bring a signed liability agreement. Large groups encouraged, please call us in advance so we can serve you better. The waiver for the Redmond event is at www.redmond.gov/insidecityhall/publicworks/environment/pdfs/WaiverForm2006.pdf.

Woodinville, Sept. 30, 10am – 2pm
Contact Patrick Tefft at
PatrickT@ci.woodinville.wa.us
425-489-2700.

Redmond, Oct. 14, 10am – 2pm
Contact Peter Holte at
pholte@redmond.gov or
425-556-2822

buses and trucks. They found that heart disease patients exposed to such pollution were about three times more likely to have decreased blood flow to the heart while exercising, compared with patients exercising after breathing cleaner air.

- Global climate change can affect our weather, water supply, salmon fisheries, agriculture and economy. In our region, exhaust emissions from motor vehicles are responsible for over 50 percent of climate-changing carbon dioxide — a primary greenhouse gas.

What can we do about it? Using alternatives to driving alone is an excellent way to reduce the number of smog-contributing cars on the roads. Here are some tips from the Puget Sound Clean Air Agency for reducing the amount of time that you drive alone:

- Combine errands into one trip and plan your route to limit driving time and distance.
- Commute by bus, train, carpool, vanpool, walking or bicycle. Also, try walking, cycling or carpooling to activities, errands, and your children's school.
- Join Flexcar, a car-sharing program. Flexcar offers a variety of low emission and hybrid vehicles.
- Speak with your employer about the possibility of teleworking at least one day a week.
- Consider switching to a flexible work schedule if, for example, working, four ten-hour days instead of five eight-hour days each week is a possibility.

Visit www.GoRtrip.com. R-TRIP offers personalized assistance with accessing alternatives to driving alone, plus rewards and incentives for choosing commute alternatives.

RECYCLING

Sewer Backups

Cooking more indoors during the fall? Getting ready for more entertaining? By following some easy food recycling tips, it is possible to reduce the risk of a sewer backup at your home while potentially downsizing to a smaller can size.

Food scraps can be mixed in with yard debris picked up curbside and hauled off to be made into natural Cedar Grove compost. This also keeps more garbage out of the landfill.

What's wrong with food scraps down your drain or disposal?

Vegetables, meat, rice, butter, salad dressing and other food scraps can quickly turn to grease in your drain. When grease builds up inside the pipe that connects your house to the public sewer system, the pipe can get plugged up, resulting in a costly, messy back up. This can easily be avoided. And by not using the garbage disposal, you can also conserve water.

Tips to avoid backups

- Scrape food from plates and pans into a Food Scraps Bucket and then into the yard debris container
- Let melted oils and grease used for

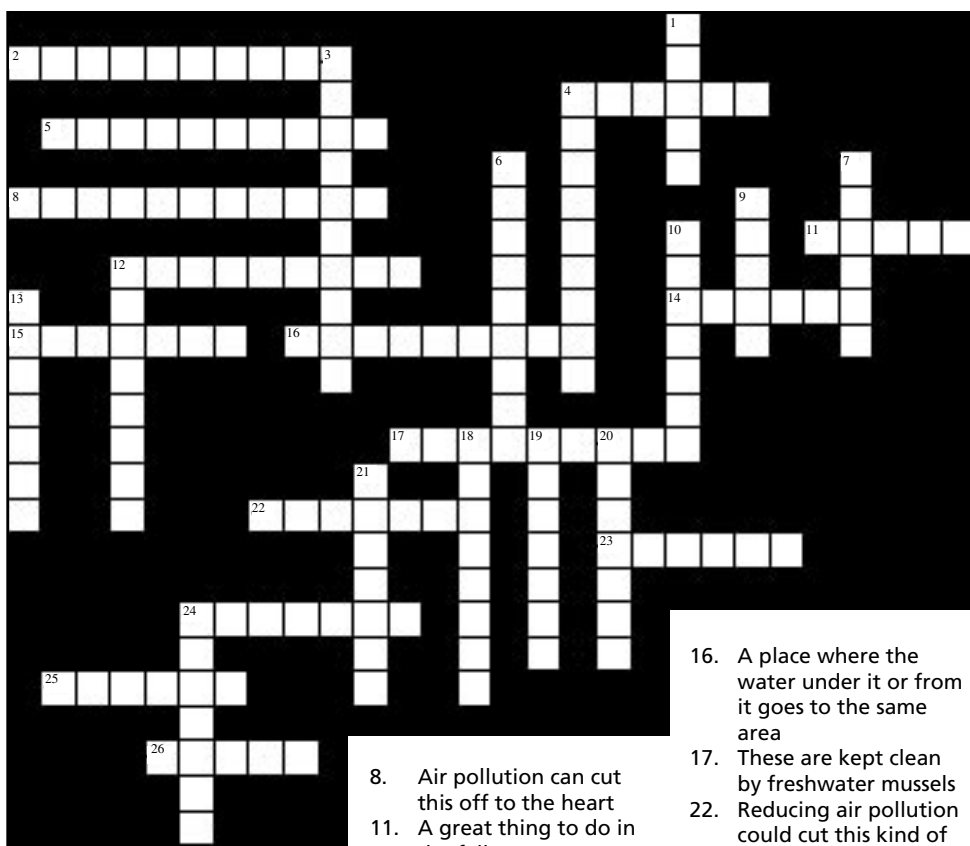
cooking solidify in the refrigerator before placing them in the yard debris cart for collection.

- Place a food trap/drain screen in your sink to catch the food scraps for the Food Scraps Bucket

For Information about Redmond's solid waste program, contact Jerome Jin at 425-556-2811, jjin@redmond.gov or visit www.redmond.gov/insidcityhall/publicworks/environment/recycling.asp.

For more information about wastewater collection and the sanitary sewer system, or to report a problem call 425-556-2800.

Clues to puzzle answers can be found by reading fall 2006 Environews articles. Enjoy finding the answers while learning about the natural wonders in our community and what you can do to help preserve them.



Across

2. Climate-changing carbon dioxide is primarily this kind of gas
4. Salad dressing can turn to this in your drain
5. Over 300 native species are in danger of this happening
8. Air pollution can cut this off to the heart
11. A great thing to do in the fall
12. Due to this, heart patients can feel a decrease in blood flow
14. Volunteers will count and identify these in local streams
15. You can get these by choosing commute alternatives

16. A place where the water under it or from it goes to the same area
17. These are kept clean by freshwater mussels
22. Reducing air pollution could cut this kind of spending
23. Polluted air can make these symptoms worse
24. One thing you can do to help reduce vehicle emissions
25. This type of car runs off a rechargeable battery and gasoline
26. This is saved by

installing efficient fixtures in your home

Down

1. 8% of all residential water is caused by these
3. Declining mussels in a stream indicates stress on this type of system
4. Creatures that form a membrane to move to new locations
6. What mussels do to transport themselves to a new location
7. Mature mussels live here
9. Larval mussels attach themselves to these parts of a fish
10. One important food source for Native Americans
12. Microscopic plants and animals
13. The single biggest activity affecting air quality in our region
18. By allowing you to do this, your employer can reduce pollution
19. Residents can get these if they have qualifying washers
20. A word that describes living in, on or near water
21. Mussels use these to suck water through their gills
24. This kind of global change can affect our weather

[answers on page 35](#)